Central Valley Regional Water Quality Control Board
25/26 October 2007 Board Meeting

STAFF REPORT
CONSIDERATION OF NPDES PERMIT RENEWAL
FOR

CITY OF JACKSON
WASTEWATER TREATMENT PLANT
AMADOR COUNTY

A renewed NPDES Permit for the City of Jackson Wastewater Treatment Plant is a major permit and is being considered for Regional Water Quality Control Board adoption at the 25/26 October 2007 Board Meeting.

BACKGROUND AND FACILITY DESCRIPTION

The City of Jackson (Discharger) owns and operates a wastewater treatment plant (WWTP) and serves a population of about 4,000 with about 1,650 connections. The current residential sewer rate is $27.00 per month. The treatment system consists of a mechanical screen and spiral augur with a washer compactor for screenings, two oxidation ditches, (only one is used at a time), two secondary clarifiers (only one is used during the summer, both are used during the winter months), chlorine injection, one train of four single media sand filters, a chlorine contact basin, and dechlorination. Solids are directed to an aerated holding tank for digestion, and then directed to a belt filter press. Solids are hauled off-site to a landfill for disposal. Wastewater is discharged from Discharge Point No. 001 to Jackson Creek, a water of the United States, and a tributary to Lake Amador within the Mokelumne River watershed.

In addition to discharging to the receiving water, the Discharger is continuing to investigate potential land disposal and/or distribution of reclaimed water for irrigation.

U.S. EPA has classified this discharge as a **minor** discharge. The proposed NPDES permit renewal continues to allow the existing regulated discharge of 0.71 mgd to Jackson Creek. The permit also proposes a significant number of new and more stringent effluent limitations. New effluent limitations are proposed for aluminum; copper; cyanide; diazinon; dichlorobromomethane; 2,6-dintrotoluene; 1,2-diphenylhydrazine; electrical conductivity; iron, manganese; pH; settleable solids; tetrachloroethene; and zinc. In addition, the proposed permit includes a new effluent mass limitation for mercury, and a new “fixed” ammonia concentration to replace the existing “floating” ammonia limitations.

The proposed permit addresses the California Department of Public Health concerns regarding downstream Lake Amador domestic water uses and the agency’s recommendation for tertiary treatment plus 20:1 dilution of the WWTP effluent in Lake Amador. The permit proposes a prohibition of discharge to Jackson Creek when dilution does not provide a 20:1 flow ratio in the downstream Lake Amador. A 5-year time schedule is proposed for compliance with this prohibition. The permit also proposes that the Discharger conduct a Jackson Creek Beneficial Use Attainment Study to assess the in-stream flow necessary to sustain aquatic life beneficial uses and existing downstream water rights. Compliance schedules and corresponding interim effluent limitations are additionally included in the permit for new and more stringent effluent limitations in which the Discharger is unable to immediately comply.

The tentative permit issued for public comments contained a second discharge alternative. The tentative discharge alternative proposes the same tertiary effluent limitations, however it does not require a 20:1 discharge dilution requirement. Without the proposed discharge prohibition, this second discharge alternative allows the Discharger to continue discharging to Jackson Creek year-round.

PERMIT ISSUES

The Discharger, the Central Valley Clean Water Association (CVCWA), East Bay Municipal Utility District (EBMUD), New Faze Development, Nolte and Associates, Inc., and the California Department of Public Health (DPH) submitted comments on the tentative permit issued in August 2007. The following is a brief summary of the major issues raised through public comments. Further detail on all comments is included in the Regional Water Board staff's response to comments:

1. Discharge to Jackson Creek under 20:1 Dilution Conditions: Existing Waste Discharge Requirements (WDR) Order No. 5-00-173 required the Discharger to study the feasibility of other WWTP effluent disposal alternatives to address DPH ongoing concern regarding the discharge of wastewater to surface waters used for domestic drinking water supply. Amador Lake, which receives flow from Jackson Creek, supplies the domestic water supply to residents of a nearby trailer park and recreational area as well as individual homes surrounding the lake. On a site-specific basis, DPH is concerned that the WWTP effluent discharged into Jackson Creek contributes to more than five percent of wastewater in Lake Amador, which is an existing domestic water supply.

   The Discharger has identified the following potential alternatives to surface water discharge into Jackson Creek:

   - Water reclamation during dry weather months for irrigation of existing and future development (golf courses, public parks, etc.);
   - Effluent storage during dry weather months;
   - Land application of treated wastewater for nearby crop irrigation; and
   - Discharge to a larger surface water that can provide adequate dilution.

   Of these alternative disposal methods, and based on a number of conflicting concerns, the Discharger has indicated in their 12 May 2004 Wastewater Facilities Planning Report, that reclamation and discharge to a larger surface water appear to be the most feasible. However, more recent investigations indicate that nearby growers may potentially accept treated secondary wastewater for crop irrigation and/or future development may create a demand of Title 22 water for golf course irrigation. The Discharger is continuing to assess the potential for water reclamation, land disposal and/or discharge into a different receiving water that sustains a larger flow volume (i.e. the Mokelumne River).

   Two letters from the Stockton Branch of DPH, dated 13 July 2007 and 12 June 2003, express concerned with the "site-specific" impact that the City of Jackson WWTP discharge

may have on the beneficial use of the downstream surface water as a domestic water supply source, particularly when the volume in Lake Amador does not provide 20:1 dilution to the inflowing wastewater. The 13 July 2007 DPH letter recommends Title 22 tertiary treatment of the wastewater plus a 20:1 dilution ratio (creek-to-discharge flow) to protect downstream domestic water users. In addition to water quality needed to protect human health, the DPH letters address the perception of providing residents relatively undiluted treatment plant effluent as a drinking water source. Regional Water Board staff believes that the discharge of WWTP effluent under conditions that result in greater than five percent wastewater in Lake Amador may pose a public health threat to existing domestic water user and therefore incorporated the proposed discharge prohibition in the tentative permit based on these site-specific concerns. Regional Water Board staff also acknowledges that the recommendations in the DPH letters specified above are site-specific recommendations for this specific domestic drinking water source, not DPH department policy.

The unlined Amador Canal has historically contributed a significant flow to various forks of Jackson Creek via overflows and subsurface contributions. The creek base flow upstream of the WWTP discharge has recently been reduced due to recent repairs of the upstream stretch of the Amador Canal. The canal no longer leaks flow into Jackson Creek. Additionally, the Amador Water Agency has current plans for the construction of a piping system for the Amador Canal flow, which is expected to eliminate contributions of additional subsurface flow to Jackson Creek within the next two years. These upstream Amador Water Agency canal repairs and construction projects contribute the concern regarding public health impacts from the Facility's wastewater discharge due to the reduced upstream base creek flow.

The Department of Fish and Game (DFG), in a letter dated 18 July 2003 signed by Larry L. Eng. Ph.D., Deputy Regional Manager, indicates that "unless concentrations of contaminants increase, continued discharges of treated wastewater will benefit the fish and wildlife of the creek and associated habitat." DFG based this assessment on the contributed flow of effluent to the creek, not from a public health perspective.

Provision III.E of the proposed Order prohibits the Discharger from discharging into Jackson Creek in amounts that will cause downstream Lake Amador water to exceed one part wastewater in twenty parts of lake water, based on an average daily flow of discharge from the WWTP

The Discharger has submitted comments indicating concern with removing the discharge from Jackson Creek due to need for approval of this activity from the State Water Resources Control Board, Division of Water Rights (DWR). Further, the Discharger is concerned that without DWR approval the removal of the discharge into Jackson Creek, it will be in violation of the proposed Order.

The proposed Order requires the Discharger to conduct a Jackson Creek Beneficial Use Attainment Study to determine the minimum in-stream flows in Jackson Creek necessary to sustain aquatic life beneficial uses and existing water rights. The proposed requirements for the Jackson Creek Beneficial Use Attainment Study have been revised to require DWR

consultation while developing the Study work plan. The proposed order also includes a provision to allow the permit to be reopened by the Regional Water Board for appropriate revisions in the event that DWR determines that it is not feasible for the discharger to remove or reduce its discharge to Jackson Creek due to downstream water rights.

2. 20:1 dilution as a region-wide policy: The Central Valley Clean Water Association (CVCWA) expressed concern over the potential region-wide application of the DPH's recommendation of 20:1 dilution to reduce the risk of public health concerns, without the consideration of all facts and circumstances as site-specific circumstance.

   Staff has reviewed the concerns expressed by DPH in regards to a minimum 20:1 dilution ratio necessary to limit the risk to public health, and determined that in this specific case concerning the City of Jackson WWTP discharge, and Jackson Creek and Lake Amador as the receiving waters. Regional Water Board staff consideration of this guidance is being applied to this specific tentative NPDES permit and not to other tentative permits for discharges that do not have the same site-specific concerns. The proposed permit fact sheet describes the site-specific basis in which DPH's recommendation is considered. The additional DPH letter to the Regional Water Board dated 1 October 2007 (submitted as public comments) continues to provide site-specific public health concerns that are not region-wide concerns. Therefore, the 20:1 dilution recommendation has been evaluated on a site-specific basis, considering downstream beneficial uses of the receiving water and the protection of public health, and not on a region-wide policy basis.

3. Editorial error transferring correct effluent limitations from the Fact Sheet to the Order: The Discharger submitted comments regarding inconsistencies between effluent limitations contained in the Fact Sheet and Order. Staff acknowledges there were editorial errors in regards to the transferring of correct effluent limitations for pH, copper, zinc, and silver from the Fact Sheet to the tentative permit that was issued for public review. The Fact Sheet and the permit effluent limitations for these parameters have corrected.

4. Fixed effluent limitation for ammonia: The Discharger has expressed concern over the pH value used to calculate the proposed effluent limitations for ammonia. Staff acknowledges that this concern is due in part to an editorial error. Edits has been made to the proposed permit to clarify the correct pH limitation and pH used for calculation of proposed ammonia limitations. The Fact Sheet that was issued for public comments contained an accurate description of the proposed pH value and the calculations for the proposed effluent limitations for ammonia.

   The Discharger has requested that an instantaneous maximum effluent limitation of 7.5 standard units be established in the proposed Order, which is more stringent than the water quality based effluent limitation of 8.5 standard units. Further, the Discharger has requested that the effluent limitations for ammonia be calculated assuming compliance with the more stringent pH effluent limitation of 7.5 standard units (to serve as the worse case scenario), which would result in less stringent ammonia effluent limitations. Staff proposes an instantaneous pH effluent limitation of 8.0 standard units, which is more stringent than the standard 8.5 pH limitation. However, staff is not proposing the requested pH limitation of 7.5 standard units. Data collected over the previous permit term indicates that the

Discharger has not been able to reliably comply with an instantaneous maximum effluent pH of 7.5. However, it is able to comply with an effluent pH of 8.0 standard units reliably. Therefore, the proposed ammonia effluent limitations are calculated using the proposed pH effluent limitation of 8.5 (which was established based on data from the previous permit term) and the worst case scenario for pH, as appropriate.

5. Daily effluent monitoring for temperature, pH, and ammonia: The Discharger has expressed concerns regarding the proposed daily effluent monitoring for temperature, pH, and ammonia. The Discharger states that this monitoring frequency is excessive because the WWTP process generally does not change much on a day-to-day basis.

   Due to concerns over high ammonia concentrations in the effluent over the previous permit term, daily monitoring for ammonia has been proposed to determine compliance with the interim effluent floating effluent limitations for ammonia. Because these interim limitations are "floating" limits, concurrent pH and temperature monitoring on a daily basis is required during the interim period. The monitoring frequency for ammonia, pH, and temperature of twice a week has been retained from the existing WDR Order No. 5-00-173 to continue the determination of compliance with the final effluent limitations for ammonia, effective in May 2010.

   It should be noted that although WWTP processes do not change greatly from day to day, the quality of effluent may change based on a number of other factors. Due to the relatively low monitoring costs of these parameters and past facility performance, staff believes that daily monitoring for pH, temperature, and ammonia is reasonable.

6. Provision VI.C.6.a (Title 22, or equivalent): The Discharger, New Faze Development, and Nolte and Associates, Inc., submitted comments regarding Provision VI.C.6.a., which states:

   "Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the Department of Public Health (DPH) reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3, (Title 22), or equivalent."

   The Discharger expressed concerns about "Chapter 3" in its entirety, this denotes the requirement for all monitoring, alarms, and redundancy features. Additionally, Nolte and Associates, Inc. expressed concerns that the current property owned by the City would not be large enough to provide the necessary room to build additional facility processes and structures necessary to meet all Title 22 requirements.
   The proposed permit does not include the requirements for unrestricted beneficial reuse contained in Chapter 3. For wastewater disposal, the Discharger is required to meet Title 22-quality effluent (hence the use of "of equivalent"), but not the redundancy and storage requirements for beneficial reuse that is the full suite of Title 22 requirements. For clarification, a statement was added to Section IV.C.3.v. of the Fact Sheet.

7. Reasonable Potential for Iron: The Discharger submitted comments stating that the available data for iron does not demonstrate reasonable potential to exceed water quality objectives.

The maximum effluent concentration (MEC) for iron in the effluent was 60 µg/L. The maximum concentration in the receiving water was 360 µg/L. As specified in Step 6 of Section 1.3 of the SIP, when the background concentration (receiving water concentration) is above the water quality criteria, and the parameter is detectable in the effluent, the discharge demonstrates reasonable potential to exceed water quality criteria.

8. Redirecting the City of Jackson's discharge from Jackson Creek to the Mokelumne River: East Bay Municipal Utility District expressed concern over the redirecting of the City of Jackson's discharge from Jackson Creek to the Mokelumne River as an alternative discharge option to comply with Provision III.E of the proposed Order (which prohibits discharge into Jackson Creek without receiving 20:1 dilution).

   The redirecting of the Discharger's effluent from Jackson Creek to an alternative location is beyond the scope of this permit and may be addressed at an appropriate time.

9. Dioxins. Although comments regarding dioxins were not raised during the public comment period for this specific permit, this permit, along with other tentative NPDES permit(s) being considered at the October 2007 Regional Water Board meeting, address dioxins detected in the WWTP effluent.

SUMMARY

Major and minor issues raised by are addressed in Regional Water Board Staff Response to Comments. Additionally, minor edits have been made to the tentative permit where appropriate. In summary, the significant issues for Regional Water Board consideration include the following:

- Lake Amador water-to-treated effluent dilution to protect downstream municipal and domestic beneficial uses
- Maintenance of in-stream flows in Jackson Creek to support aquatic life uses and existing water rights; and
- Alternatives to surface water discharge to Jackson Creek